25X1

CLASSIFICATION

CENTRAL INTELLIGENCE AGENCY

REPORT

INFORMATION REPORT

CD NO. 25X1

COUNTRY USSR (Black Sea)

DATE DISTR. 7 October 1955

SUBJECT Atomic Energy Research Institute at Sinop

NO. OF PAGES 5

PLACE ACQUIRED

DATE OF INFO.

NO. OF ENCLS. (LISTED [redacted]) 25X1

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[redacted]

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[redacted]

THIS IS UNEVALUATED INFORMATION

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Attached is [redacted] forwarded as received. 25X1

[redacted] Comments: 25X1

1. Throughout this report read:
   Sukhumi for Zukhum

   Agudzeri for Agudzheri

   Ochemchiri for Ostsam[redacted]iri

2. Throughout this report read:

   Dr. H. Hubert Uerlings for Uerlings (fnu)

   Professor Peter Adolf Thiessen for Professor Thiessen

   Dr. Max Steenbeck for Dr. Steenbeck

   Dr. Heinz Froehlich for Dr. Froehlich (fnu)

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C-O-N-F-I-D-E-N-T-I-A-L

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ARMY	x	AIR	x	FBI		AEC	x	OCI	x		

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CLASSIFICATION CONFIDENTIAL [redacted]

COUNTRY USSR REPORT NO. [redacted]

TOPIC Nuclear Institute of Manfred von Ardenne near Zukhum

EVALUATION [redacted] PLACE OBTAINED [redacted] 25X1

DATE OF CONTENT [redacted] 25X1

DATE OBTAINED [redacted] DATE PREPARED 4 May 1955 25X1

REFERENCES [redacted] 25X1

PAGES 3 ENCLOSURES (NO. & TYPE) 1 - sketch

REMARKS [redacted] 25X1

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Location of the Manfred von Ardenne Institute.

1. The institute was located in the western part of Sinop, about 7 km southeast of Zukhum, not far from the Black Sea Coast and east of the single-track railroad line and the asphalt road from Zukhum to Ootsamotsiri. The buildings included an old sanatorium which was rebuilt in 1946/1947 for laboratory purposes, the new buildings D and L, a new workshop, a new storage building and a new building for the cyclotron. The institute was controlled by the IX MVD Administration. 25X1

Power Supply.

2. The institute had its own power station with two [redacted] 240-kW Diesel generators. Additional power was received through ground cables from the Zukhum Power Plant which also supplied electric current to the Hertz Institute in Agudzeri. This supply however, was very irregular. Dr Lehmann stated that Agudzeri was to be supplied with 380-V power, but that the voltage actually received by the Hertz Institute never exceeded 180 V. It was found that the ground cable from Zukhum to Augdzeri was tapped by civilians. 25X1

Activities at Dr Lehmanns' Laboratory.

3. The laboratory produced crucibles of thorium oxide, a grey to white powder which was received in 5-kg glass containers. The powder was mixed with 96 percent alcohol, manually pressed in cylindrical molds, 25 mm high and80 mm in diameter, and dried in the air for 24 hours. Subsequently the molds were dried for 6 hours in an electric heavy duty furnace at a temperature raising from 0 to 1,000 centigrades. At this temperature the molds were baked for another 60 minutes. They were left in the furnace for 24 hours to cool down. The material was heated again in a high vacuum furnace for 30 minutes to reach a maximum temperature of

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2,000 degrees centigrade and to be sintered at this temperature for three hours. The hot material was taken from the furnace and immediately ground to powder by steel ball mills for a period of 48 hours. This powder was pressed to crucibles by a 5-ton press. A sketch was prepared giving shape and dimensions of these crucibles.[1] Beryllium oxide, a clean white flour-like powder, received in 5-kg glass containers, was less often used as basic material for the production of the crucibles. The production process was the same. It was unknown where the thorium and beryllium came from.

4. In the beginning serious difficulties were encountered in the production of the various sizes of crucibles. Hairline cracks caused 50 percent scrap. It was not remembered how these defects were gradually eliminated. Thorium and beryllium crucibles were needed at Building D and produced in accordance to the demand with a weekly output between 0 and 150 units. Dr Lehmann stated that these crucibles were used in Building D to vaporize uranium, and that prior to 1949 graphite crucibles had been used which, however, required too much vapor pressure and reacted to uranium.

5. The laboratory also produced insulating tubes. Beryllium oxide was formed by hand operated machines to hollow tubes, up to 500 mm long and 0.5 to 5 mm in diameter (sic). These tubes were annealed then air cooled for 24 hours and longer and finally sintered. The cooled tubes were broken to small pieces, 1 to 2 mm long, to be drawn on tungsten filaments, generally 5 mm in diameter. Waste material could be reused, while all used insulation sleeves had to be destroyed. The insulating tubes were produced in accordance to the varying requirements of the institute.

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6. Schulte Werflinghoff occasionally had to smelt rods, 100 mm long and 30 mm in diameter, of some unknown steel grey material with a dark to dirty yellow top layer. The weight of these rods was not remembered. The material alleged contained uranium and was therefore called "uranium metal". The origin of this designation could not be given. These rods were cut into small discs by a corrundum disc. Experiments to cut the material with steel saws had failed. The discs were then ground to grains in a steel mortar, filled in thorium or beryllium crucibles and smelted in a high vacuum furnace at temperatures of 1,800 to 1,850 centigrades. The smelted material was cooled down for about 24 hours and then delivered to Building D.

7. From Dr Lehmann, Studienrat assistant master at a secondary school, Uerlings (fnu) and Dr Froehlich (fnu), it was learned the Soviets were satisfied with the experiments conducted at Building D including the vaporization of uranium and magnetic separation. Dr Lehmann's work was appreciated because of the good results obtained in the field of ceramics research and especially for the production of the thorium and beryllium crucibles. In late 1948, or early 1949, he was ordered to establish another laboratory of this type in Leningrad. Studienrat Uerlings stated that the Leningrad institute was allegedly equipped with many magnets.

8. Upon his repatriation Schulte-Werflinghoff was replaced by a Soviet woman Natasha (fnu) an expert for porcelain, who came from the ceramic industry in Leningrad and was retrained for her new assignment. Harry Dittwald, a PW from Berlin, was also assigned to the laboratory. He had pro-Soviet tendencies.

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Furloughs and Trips.

9. The experts had a four-week leave per year which they had to spend at the institute. Only Ardenne and probably also Professor Thiessen (fnu) travelled to the mountains one or two times. Ardenne, Professor Thiessen and Dr Steenbeck (fnu) repeatedly flew to Moscow to attend conferences. Dr Lehmann, Studienrat Uerlings and one probably also Ardenne, used to fly to Leningrad where Uerlings once stayed for several months.

[redacted] Comment. For a sketch of the crucibles, see Annex. 25X1

C-O-M-F-I-D-E-N-T-I-A-L

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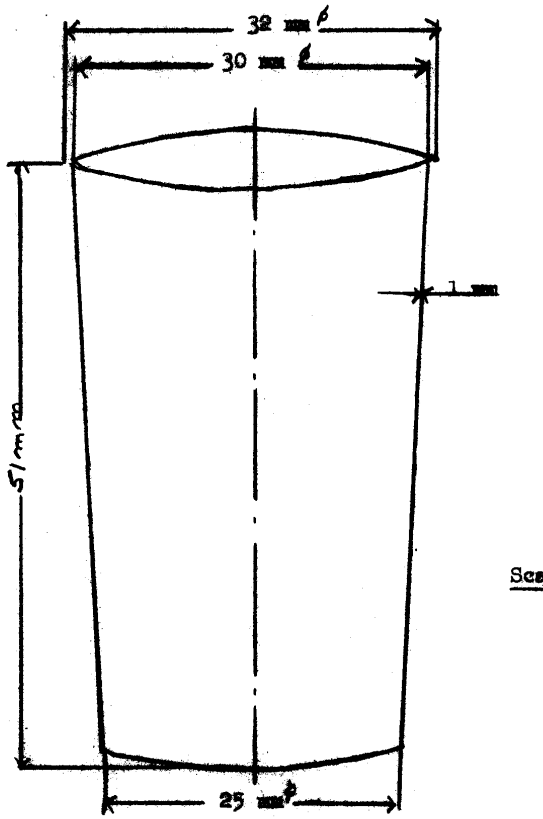
Annex

-4-

Sketch of Ceramic Crucible



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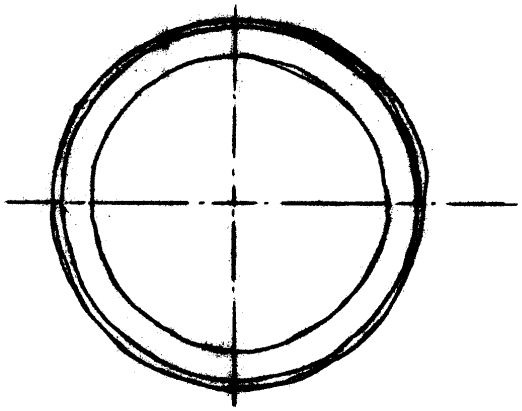

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COUNTRY USSR REPORT

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EVALUATION PLACE OBTAINED 25X1

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10. [redacted] Comment. For a sketch of the crucibles, see Annex. 25X1

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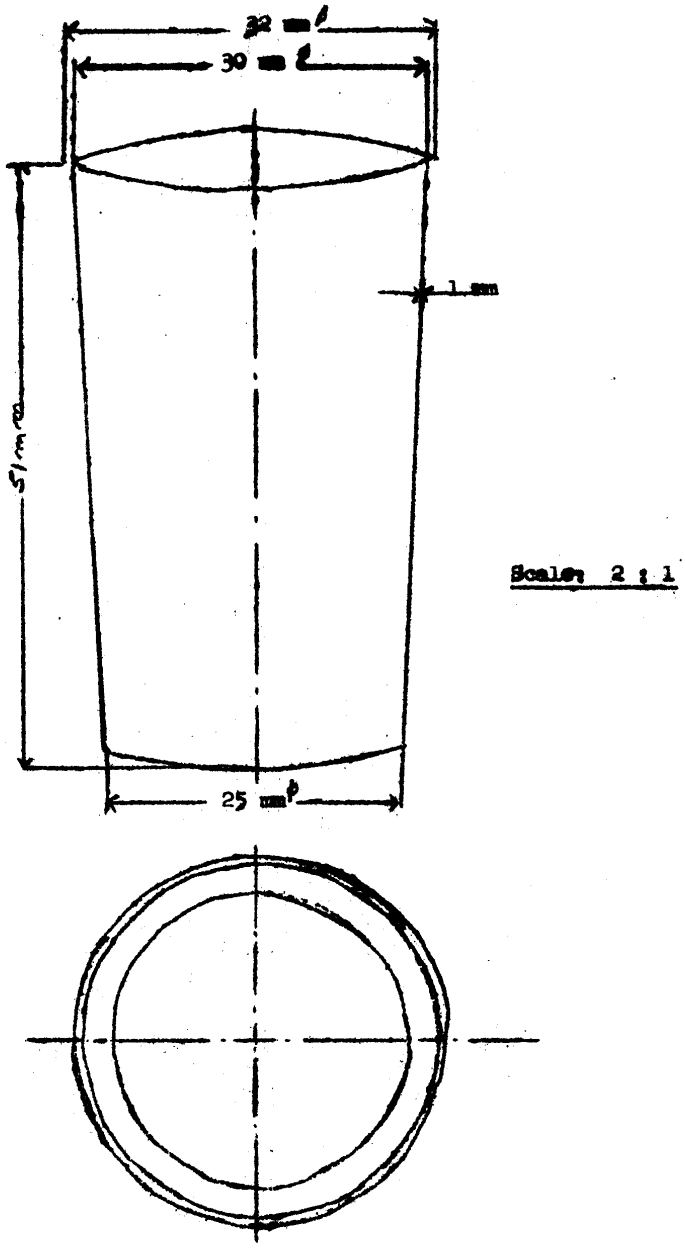
Annex

-3-

Sketch of Ceramic Crucible



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C-O-N-F-I-D-E-N-T-I-A-L

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